the area and position of the earthed conductor to change so that a frequency characteristic, which is set up by conductive pattern, may become an enhanced characteristic.--

Please replace paragraphs 2 and 3 on page 1 between lines 16-30 and paragraph 1 on page 2 between lines 1-2 with the following substituted paragraph:

--Recently, because of the development of the information and communication technology, mobile communication machines, ISDN and computer devices carry circuit blocks to transmit data at high speed by using the radio or other types of lines.

When such circuit blocks are carried on machines, not only high speed can transmit data but also it hopes for compositions in consideration of the noise. Furthermore, the miniaturization, complexation and multifunctionalization of parts are attempted when circuit blocks are carried on mobile devices. For example, it is unacceptable to realize low-pass filters, high-pass filters, band-pass filers and couplers with lumped parameter circuits using chip parts such as condensers and coils in high frequency applications which use a microwave band and millimeter wave band as a carrier like radio LAN (Local Area Network) and a variety of terminals of the communication devices. So low-pass filters, high-pass filters, band-pass filters and coupler using a distributed parameter circuit like a micro-strip line and strip line are used.--

Please replace the last paragraph on page 5 between lines 29-31 and paragraphs 1-4 on page 6 and the first paragraph on page 7 with the following substituted paragraphs:

--The embodiment of the present invention will become better understood with reference to the following description and drawings. Conductive patterns are formed on the substrate to control circuit devices, moreover, shown in Fig. 4 in the circuit device having earthed conductor which is formed on the dielectric substrate, e.g. a distributed parameter circuit device 10 having a

tri-plate structure, lattice-shaped earthed conductor 12 is formed on the dielectric substrate 11 to change the area and position of the earthed conductor 12. The earthed conductor 12 connects at layer via hole 13 with the earthed conductor (not illustrated) on the opposition side. Therefore, the conductive pattern, which control circuit device in the dielectric substrate 11, is shielded with earthed conductors 12 and via hole 13.

When the pattern 12, which is formed on the outside of the dielectric substrate, forms the area 15 without the earthed conductor, 12 shown in Fig. 5A in the odd exciting mode and further shown in Fig. 5B in the even exciting mode, the frequency characteristic is able to change because of changing the distribution of electromagnetic field between conductive patterns 17 and the earthed conductors 12 that control actuation of the circuit device. Therefore changing of the area and position of the earthed conductor 12 can adjust the frequency characteristic of the distribution parameter circuit device having the tri-plate structure to the desired characteristic. For example, these measures are forming conductive parts on the area 15 without the earthed conductor 12, changing the position and amount of the conductive parts, and cutting earthed conductor 12 between the areas without earthed conductor 12.

Figs. 6A to 6C show the structure of the band-pass filter having the tri-plate structure. This band-pass filter is an impedance step type, that has the part of the pile of the adjacent resonator conductive pattern which has shorter length than $\lambda/4$.

Fig. 6A is an oblique figure, Fig. 6B is a plan view while Fig. 6C is a sectional view at line I-I' in Fig. 6B. Shown in Figs. 6A to C, this band-pass filter has the earthed conductors 22a and 22b on both side of the dielectric substrate (insulating substrate) 21. Moreover the band-pass filter has two resonator conductive patterns 23a and 23b between earthed conductors 22a and 22b to compose the band-pass filter. One edge of the resonator conductive patterns 23a and 23b are shortened with earthed conductors 22a and 22b by layer via hole 24. Expanding the width of the

pattern at the other edge (opening side) of the resonator conductive patterns 23a and 23b shortens the length of the pile of adjacent resonator conductive patterns by increasing the characteristic impedance at the short circuit side and decreasing the characteristic impedance at the opening side.--

Please replace paragraph 2 on page 7 between lines 10-12 with the following substituted paragraph:

--The earthed conductor 22a connects at said via hole 24 with 22b, and resonator conductive patterns 23a and 23b are shielded with forming layer via hole 24 in the circumference.--

A8

Please replace paragraphs 4 and 5 on page 7 between lines 18-30 and the first paragraph on page 8 between lines 1-5 with the following substituted paragraphs:

--Fig. 7 shows the frequency characteristic of the band-pass filter 20 and, in this figure, the frequency characteristic (illustrated by solid line in Fig. 7) in the case of forming the conductive layer 26 having the area 25 without earthed conductor is enhanced in frequency band width than that (illustrated by dotted line) in the case of deforming the area 25 without the earthed conductor.

A9

Therefore designing resonator conductive pattern and dielectric substrate and forming the conductive layer 26 having the area 25 without the earthed conductor provides the desired frequency band having the desired frequency characteristic. When frequency characteristic is wider than desired frequency, you have only to form conductive parts e.g. cooper foil, conductive paste and solder on the area 25 without earthed conductor so that frequency band will be narrow and you can obtain desired band-pass filter having the desired frequency

A10

characteristic. On the contrary, when the frequency characteristic is narrower than desired frequency band, you have only to cut the earthed conductor 22a and make the frequency band wide so that you can gain desired band-pass filter having the desired frequency characteristic.

Please replace paragraphs 2-4 on page 8 and the first paragraph on page 9 with the following substituted paragraphs:

--How to make the band-pass filter 30 which formed a pattern on the earthed conductor 32, said pattern is that rectangle-shaped non earthed conductive area 35 is formed on resonator conductive pattern or between resonator conductive patterns, as a method which made it change an area and a position of the earthed conductor 32 is by forming the area without earthed conductor 32 on the dielectric substrate, in shown Fig. 8A. In the case the area and position of the earthed conductor 22 can change by forming the conductive parts 38 on the rectangle-shaped area 35 without the earthed conductor 32, in shown Fig. 8B.

Fig. 9 shows the frequency characteristic of the band-pass filter 30, when the conductive parts 38 is formed on the rectangle-shaped area 35 without the earthed conductor 32 in the short circuit side, the frequency characteristic (solid line in Fig. 9) is wider toward high band side than the frequency characteristic (dotted line in Fig. 9) in the case of the deforming conductive parts.

Therefore, forming the conductive parts 38 on the rectangle-shaped area 35 without the earthed conductor 32, changing the position and amount of the conductive parts 38 or changing the area and position of earthed conductor 32 by cutting earthed conductor, enables to obtain the desired frequency characteristic. For example, when the frequency characteristic is narrower in high pass side than the desired frequency band, you have only to form the conductive parts 38 on the rectangle-shaped area 35 without the earthed conductor 32 and make the frequency band narrow in high pass side so that you can get the band-pass filter having desired frequency

characteristic. On the contrary, when the frequency characteristic is wider in high pass side than desired frequency band, you have only to cut the earthed conductor 32 between the rectangle-shaped areas 35 and make the frequency band wide in high pass side so that you can get the band-pass filter having desired frequency characteristic.--

Please replace paragraphs 2-4 on page 9 and the first paragraph on page 1 with the following substituted paragraphs:

--As shown in Fig. 10, an alternative method is provided to lengthen the signal input and output direction of the rectangle-shaped area 35 without earthed conductor 42, shown in Figs. 8A and 8B, is lengthened to provide the band-pass filtered 40 by forming the rectangle-shaped area 45 without the earthed conductor 42. In the case, the frequency band (solid line in Fig. 11) in forming the conductive parts 48 on center of each of the rectangle-shaped are 45 without earthed conductor is wider than the frequency characteristic (dotted line in Fig. 11) in deforming the conductive parts 48, shown in Fig. 10B.

Therefore, forming the conductive parts 48 in the center of the rectangle-shaped area 45 without earthed conductor 42, changing the position of the conductive parts 48 or cutting the earthed conductor 42 to change the area and position of the earthed conductor, provides the desired frequency characteristic. For example, when the frequency characteristic is narrower than desired, you have only to form the conductive parts 48 on the rectangle-shaped area 45 without earthed conductor 42 and make the frequency band wide so that you can get the band-pass filter having the desired frequency characteristic. On the contrary, when the frequency characteristic is wider than desired frequency band, you have only to cut the earthed conductor 42 and make the frequency band narrow so that you can get the band-pass filter having the desired frequency characteristic.

Moreover in the band-pass filter shown on Figs. 6A to 6C, the area 25 without the earthed conductor exchanges for the thin-filmed conductive layer 27 shown in Figs. 12A and 12B so that the thin-filmed conductive layer 27 shown in Figs. 12A and 12B so that the thin-filmed conductive layer is cut and processed easily. Thus, the frequency characteristic can be adjusted easily by changing the area and position of the earthed conductor 42.--

Please replace paragraphs 3 and 4 on page 10 and the first paragraph on page 11 with the following substituted paragraphs:

One can adjust the frequency characteristic by using said method, when the band-pass filter has the multi-layered structure shown in Figs. 13A to 13C. Even if the wiring pattern layer 53 is formed between resonator conductive pattern 51 and earthed conductor 52 as shown in Fig. 13A, it is able to change the characteristic of the band-pass filter by forming the area 54 without earthed conductor 52. But, in this case, because of forming the wiring pattern layer 53 between resonator conductive pattern 51 and the earthed conductor 52, the amount of adjustment of the frequency characteristic is less than the amount of adjustment of the frequency in non multi-layered structure. When two band-pass filters 55a and 55b have a laminated structure with a unified earthed conductor 56, you can adjust the frequency characteristic by forming the area 57 without the earthed conductor 56 on the outside layer which changes corresponding to the frequency characteristic of the band-pass filter and changing the area and position of the earthed conductor, shown in Fig. 13B. Moreover, if the distance of the side of the substrate having band-pass filter and resonator conductive pattern is short, forming the earthed conductor 58 on side surface and forming the area 59 without the earthed conductor 58 on the side surface of the substrate and changing the area and position of the earthed conductor 58 enables the frequency characteristic to change, shown in Fig. 13C.

The above-mentioned description about said embodiment explains the distributed parameter circuit device as the band-pass filter. When the printed board 60 which enables a signal processing circuit 62, e.g. MMIC, to mount on the substrate having the distributed parameter circuit device 61, it is possible to change the area and position of the earthed conductor 64 corresponding to the position of conductive pattern for setting up the distributed parameter circuit 61 device connecting at connecting via hole 63 with signal processing circuit by forming the pattern on the earthed conductor 64, shown in Fig. 14.--

Please replace paragraphs 3 and 4 on page 11 and the first paragraph on page 12 with the following substituted paragraphs:

--Fig. 15 is the oblique figure of the low-pass filter 70. The pattern 72a for the series inductance and the pattern 72b for the parallel capacitance are formed in series on one side of the dielectric substrate 71. Moreover, the earthed conductor 73 is formed on another side of substrate. Plastering the dielectric substrate 71 forms the patterns 72a and 72b to the dielectric substrate 75 formed the earthed conductor 76 forms the band-pass filter 70 having the tri-plate structure. Changing the area and position of the earthed conductor 76 by forming the area without the earthed conductor 76 on side formed on the earthed conductor 76 provides the desired frequency characteristic, as the band-pass filter.

Fig. 16 is the oblique figure of the high-pass filter. The patterns 82a and 82b for the parallel inductance are formed on one side of the dielectric substrate 81 and the earthed conductor 83 is formed on another side of the dielectric substrate 81. The edges of the patterns 82a and 82b are shorted with the earthed conductor 83. Producing the series capacitance opposite to the patterns 82a and 82b and connecting the patterns with the earthed conductor 83 to form the patterns 86a and 86b and 86c for the parallel inductance on one side of the dielectric

A20 end

substrate 85. The earthed conductor 83 is formed on the side that is not signal input and output side. Moreover, the earthed conductor 83 is formed on one side of the dielectric substrate 88.--

Please replace paragraphs 2 and 3 on page 12 and the first paragraph on page 13 with the following substituted paragraphs:

--The dielectric substrate 85 plasters to the patterns 82a and 82b on the dielectric substrate 81 and the dielectric substrates 88 plasters to the pattern 86 on the dielectric substrate 85. When the dielectric substrate 81 plasters to the dielectric substrate 85, the dielectric substrate 85 interposes between the patterns 82a and 82b and the patterns 86a and 86b. When the dielectric substrate 85 plasters to the dielectric substrate 88, the dielectric substrate 88 interposes between the pattern 86 and the earthed conductor 89. In this case the dielectric substrate 81 plasters to the dielectric substrate 88 while the earthed conductor 83 connects with earthed conductor 87 and the earthed conductor 87 connects with the earthed conductor 89 so that it forms the high-pass filter having tri-plate structure. In this case, changing the area and position of the earthed conductor 89 by forming the area without the earthed conductor 89 on the side formed the earthed conductor 89 provides the desired frequency characteristic.

A21

Moreover, the present circuit device is not limited to the distributed circuit device. In adjustment of characteristics of the coupler, antenna and the combination between layers of the distributed parameter device, changing the area and position of the earthed conductor provides the desired frequency characteristic. Fig. 17 is the oblique figure of the coupler 90, which cuts a direct correct portion. The coupler 90 has the part of the pile of the length about 1/4 λ of the conductive pattern 92a formed on the dielectric substrate 91 and the conductive pattern 92b formed on the substrate 91. If the area and position of the earthed conductor 93 formed outside of conductive patterns 92a and 92b changes, you can get the desired coupler. Fig. 18 is the

A22

A22 end

the area which is difference from the circuit device parts and the first area of the dielectric substrate herein the signal processing circuit processes the desired frequency characteristic signal.--